

**REMARKS****I. Claim Rejections Under 35 U.S.C. § 103**

The Examiner rejected claims 3, 4, 6, 7, 10 and 12-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,491,474, issued to Neidlinger et al. ("Neidlinger") in view of K. Kaede et al., "A Passive Double Star Optical Subscriber System With Frequency Division Duplex Transmission And Flexible Access," IEICE Trans. Comm. Vol. E75-B No. 9, Sept. 1992 ("Kaede"), and further in view of U.S. Patent No. 5,719,904, issued to Kim ("Kim"). The Applicant respectfully disagrees with the rejection.

In order to establish a prima facie case of obviousness under 35 U.S.C. § 103, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In view of all factual information, the Examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. MPEP § 2142. Impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. Id. Finally, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Applicant respectfully submits that the rejection of independent claims 3, 7, 12, 16 and 17 over the three reference combination of Neidlinger, Kaede, and Kim is improper because (1) Neidlinger teaches away from Kaede; (2) there is no reasonable expectation of success by the combination of Neidlinger, Kaede and Kim; and (3) the combination of Neidlinger, Kaede, and Kim is based on impermissible hindsight.

First, the rejection is improper because Neidlinger teaches away from Kaede. Neidlinger states that for decoupling the electro-optical transducer LD and opto-electrical reception transducer PD, and also for directional separation, a wavelength-division multiplexer WDM is inserted between the associated light waveguide subscriber line OAL-OB and both the opto-electrical reception transducer PD and electro-optical transmission transducer LD of each station. Col. 3, ll. 54-61 (emphasis added). Thus, the system in Neidlinger transmits in the upstream direction at a first wavelength and in the downstream direction at a second wavelength.

Kaede teaches a pulsed PSK transmission that realizes a single wavelength bidirectional transmission in conjunction with a baseband transmission. Pg. 845, col. 1. Neidlinger, however, criticizes Kaede, and other art, stating that:

A spectral separation of the signals of different transmission directions thus becomes possible in the electrical part of the receiver; disturbances due to increased shot noise, amplitude noise (RIN-Relative Intensity Noise) of the light source and a possible heterodyne effect are thereby not suppressed. Since a burst-like signal is present in the baseband in the upstream direction, special measures for a fast, time-dependent and amplitude-dependent response of the receiver of the central station are required in general, particularly in the case of different signal levels of the signals arriving in the central station proceeding from the individual decentralized stations.

Col. 1, ln. 62 - col. 3, ln. 6. Further, a stated object of Neidlinger is to "avoid the aforementioned disadvantages in the telecommunications systems" such as Kaede. Col. 2, ll. 14-19. Clearly, then, Neidlinger teaches away from Kaede, and thus the combination of Neidlinger and Kaede is improper.

Second, the rejection is improper because there is no reasonable expectation of success by the combination of Neidlinger, Kaede and Kim. Kim teaches majority voting that repeatedly transmits information an odd number of times and corrects errors by taking the data bit occupied by the majority of received data bits. Col. 1, ll. 52-54. Neidlinger teaches modulating the light

emitted by the laser diode of a decentralized station in the upstream signal transmission using an electrical carrier signal preferably having a carrier frequency  $f_T = n * f_B$ , wherein  $f_B$  is the useful signal bit rate and  $n$  is an integer. Col. 2, ll. 33-44. According to Neidlinger, the resulting advantages are a high-pass transmission at the receiver side in the upstream transmission of burst signals, and simple clock regeneration or resynchronization given an appropriately selected carrier frequency.

Claim 3 includes the limitation of "said Manchester coded data stream includes three (3) pulses for each data bit and further comprising voting said three (3) pulses to determine at least two (2) equivalent pulses and providing an output NRZ data bit at said first frequency equivalent to said at least two (2) equivalent Manchester data bits." Claims 7, 12, 16 and 17 recite similar limitations. Neidlinger, Kaede, and Kim, when combined, however, do not teach how to accommodate the increased bandwidth and clocking required for the claimed error correction.

In Neidlinger, the reception signal clock for the reception signal which is to have its amplitude regenerated in the discriminator Ec in the central station is regenerated in a clock generator Cl at the decentralized station. The regenerated clock signal appearing at the output Cl of the clock generator Cl is utilized for generating the carrier signal for the upstream transmission. The clock frequency  $f_B$  is multiplied  $n$  times in a frequency multiplier  $f/nf$  so that the carrier signal has the carrier frequency  $f_T = n * f_B$ . The carrier frequencies of all decentralized stations are then identical to one another within the framework of the precision of the clock regeneration. Col. 4, ll. 37-61. Thus, when the carrier frequency is  $f_T = n * f_B$ , wherein  $f_B$  is the useful signal bit rate, then the clock signal can be regenerated in the central station CU by carrier recovery and frequency division and can be utilized for the time control of the discriminator Ec. Col. 5, ll. 14-19.

The majority voting of Kim, however, would necessarily require repetitive data. Thus, the applicant submits that the regenerated clock signal C1 cannot accommodate both the repetitive data and the discriminator Ec in the central station without further modification of the references. The error correction would require at least a three-fold increase in the amount of data transmitted in the upstream transmission, in which case the carrier frequency would not correspond to the recovered clock frequency, and therefore the clock signal could not be regenerated in the central station CU by carrier recovery and frequency division without some further modification. Accordingly, the Applicant respectfully submits that there is no reasonable expectation of success by the combination of Neidlinger, Kaede and Kim.

Finally, the rejection is improper because the combination of Neidlinger, Kaede, and Kim is based on impermissible hindsight. "In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." In re Linter, 458 F.2d 1013, 1016 (CCPA 1972); MPEP § 2143. For claims 3, 7, 12, 16 and 17 to be obvious over Neidlinger, Kaede and Kim, one of ordinary skill in the art would have to arrive at the claimed inventions by (1) combining Kaede with Neidlinger even though Neidlinger criticizes Kaede and teaches away from Kaede; and 2) combining Kim with Neidlinger and Kaede even though there is no reasonable expectation of success. Thus, the Applicant submits that the combination of these three references are not sufficient to arrive at the claimed invention. Rather, the rejection amounts to impermissible hindsight, as it appears that the rejection is motivated by the Applicant's teaching rather than the teachings of the prior art.

For all of the above reasons, the Applicant respectfully submits that the obviousness rejection of claims 3, 7, 12, 16 and 17, and all claims depending therefrom, is improper and requests that the rejection be withdrawn.

## II. New Claim 21

New claim 21 is identical to cancelled claim 1. Claim 1 was cancelled in response to an obviousness rejection based on Neidlinger and Kaede in the first office action. However, upon further review of Neidlinger and Kaede as necessitated by this Reply, the Applicant now submits that the initial rejection of claim 1 based on Neidlinger and Kaede was improper because Neidlinger teaches away from Kaede. Thus, the Applicant reinstates claim 1 via new claim 21 and submits that claim 21 is allowable over Neidlinger and Kaede for the reasons stated above.

## III. Conclusion

The Applicant respectfully submits that all pending claims are in condition for allowance and respectfully requests that the Examiner issue a Notice of Allowance in due course.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayment associated with this response to Jones Day Deposit Account No. 501432, ref: 560043-610132.

Respectfully submitted,

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